SERIAL No. 3332

ONKYO SERVICE MANUAL

SYNTHESIZED
FM STEREO/AM TUNER
MODEL T-4500

Black model

BUD, BUDN	120V AC, 60Hz
BUG	220V AC, 50Hz
BUW	120V/220V AC, 50/60Hz
BUQA, BUQB	240V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

FM:

Tuning Range:	87.50 – 108.00 MHz (50/25kHz steps) and/or 88.00 – 108.00MHz
Usable Sensitivity:	Mono: 10.3dBf, 0.9μV, IHF 0.8μV DIN (75 ohms)
	Stereo: 17.2dBf, 2.0μV, IHF 20μV DIN (75 ohms)
50dB Quieting Sensitivity:	Mono: 16.1dBf, 1.7μV (75 ohms)
	Stereo: 36.1dBf, 17μV (75 ohms)
Capture Ratio:	1.3dB (Wide)
Image Rejection Ratio:	90dB
IF Rejection Ratio:	90dB
Signal-to-Noise Ratio:	Mono: 78dB, IHF
	Stereo: 73dB, IHF
Selectivity:	60dB DIN (Narrow)
AM Suppression Ratio:	50dB
Total Harmonic Distortion:	Mono: 0.1% (Wide)
	Stereo: 0.2% (Wide)
Frequency Response:	30 – 15,000Hz+0.5−1.0dB
Stereo Separation:	45dB at 1kHz (Wide)
	30dB at 70 – 10,000Hz (Wide)
Output Voltage:	0.75V
Muting Level:	17.2dBf, 2.0μV (75ohms)

AM:

Tuning Range:	European models: 522 – 1611kHz (9kHz steps)
	Canadian and USA models: 530 – 1710kHz (10kHz steps)
	Saudi Arabia & Worldwide models: 531 – 1602kHz (9kHz steps)
Usable Sensitivity:	25μV
Image Rejection Ratio:	40dB
IF Rejection Ratio:	40dB
Signal-to-Noise Ratio:	40dB
Total Harmonic Distortion:	0.7%
Output Voltage:	150mV

General

Dimensions (W×H×D):	435×92×366mm 17-1/8″×3-5/8″×14-7/16″
Weight:	4.0kg 8.8lbs.
Supplied accessories:	• AM loop antenna×1
	• FM T-shaped antenna×1
	• Connecting cable×1
	• **RI** remote control cable×1
	• 75/300ohm antenna adapter×1 (Except 220V model)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Safety-check out

(Only U.S.A. model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and chassis.

Specifications: 3.3Mohm ±10% at 500V.

2. Memory preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to change the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit.

On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

3. Voltage Selector (Back Panel)

W models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with a screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.

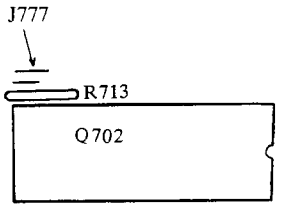
4. Tuning Step Frequency Switch (Back Panel)

W models are equipped with a switch for the AM (9kHz/10kHz) band. The switch should be set to the proper steps for the radio broadcast frequencies in your area.

5. Changing the AM band step

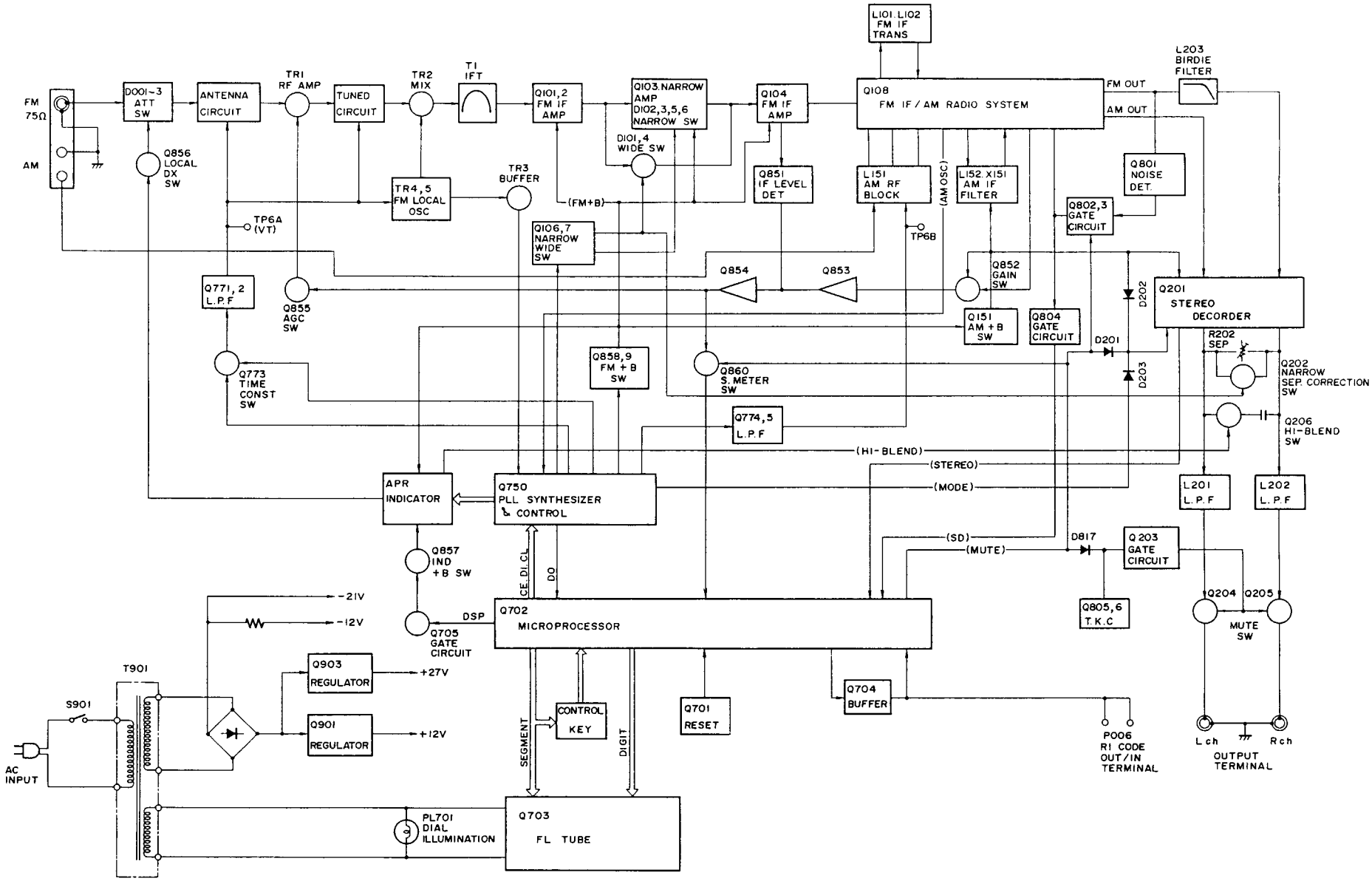
With the exception of the models below, AM BAND STEP selector switch is not provided.

MODEL	BAND STEP	J777
UD	10kHz→ 9kHz	Additional
UG/UQ	9kHz→10kHz	Eliminated

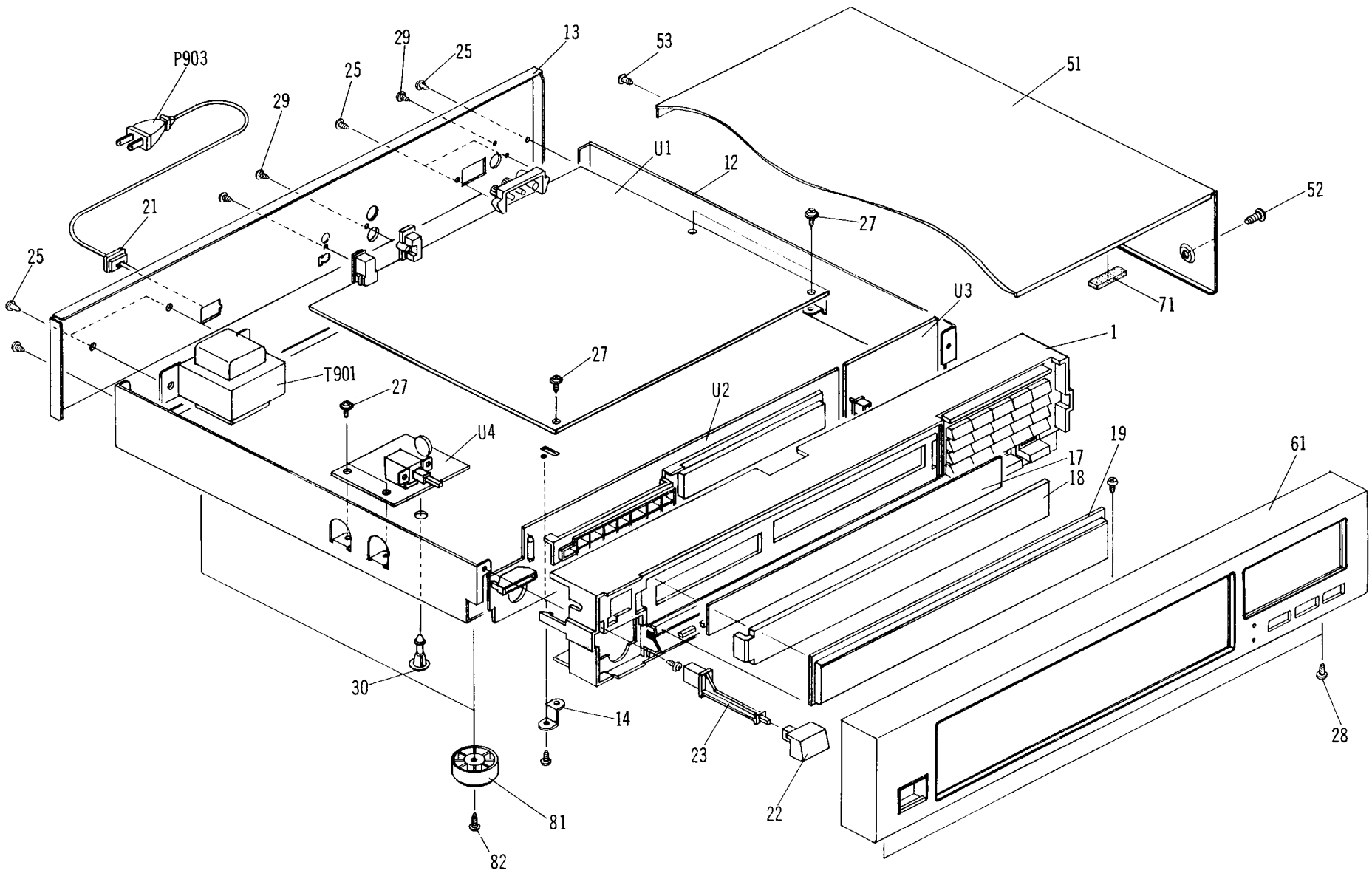


DISPLAY PC BOARD

BLOCK DIAGRAM



EXPLODED VIEW



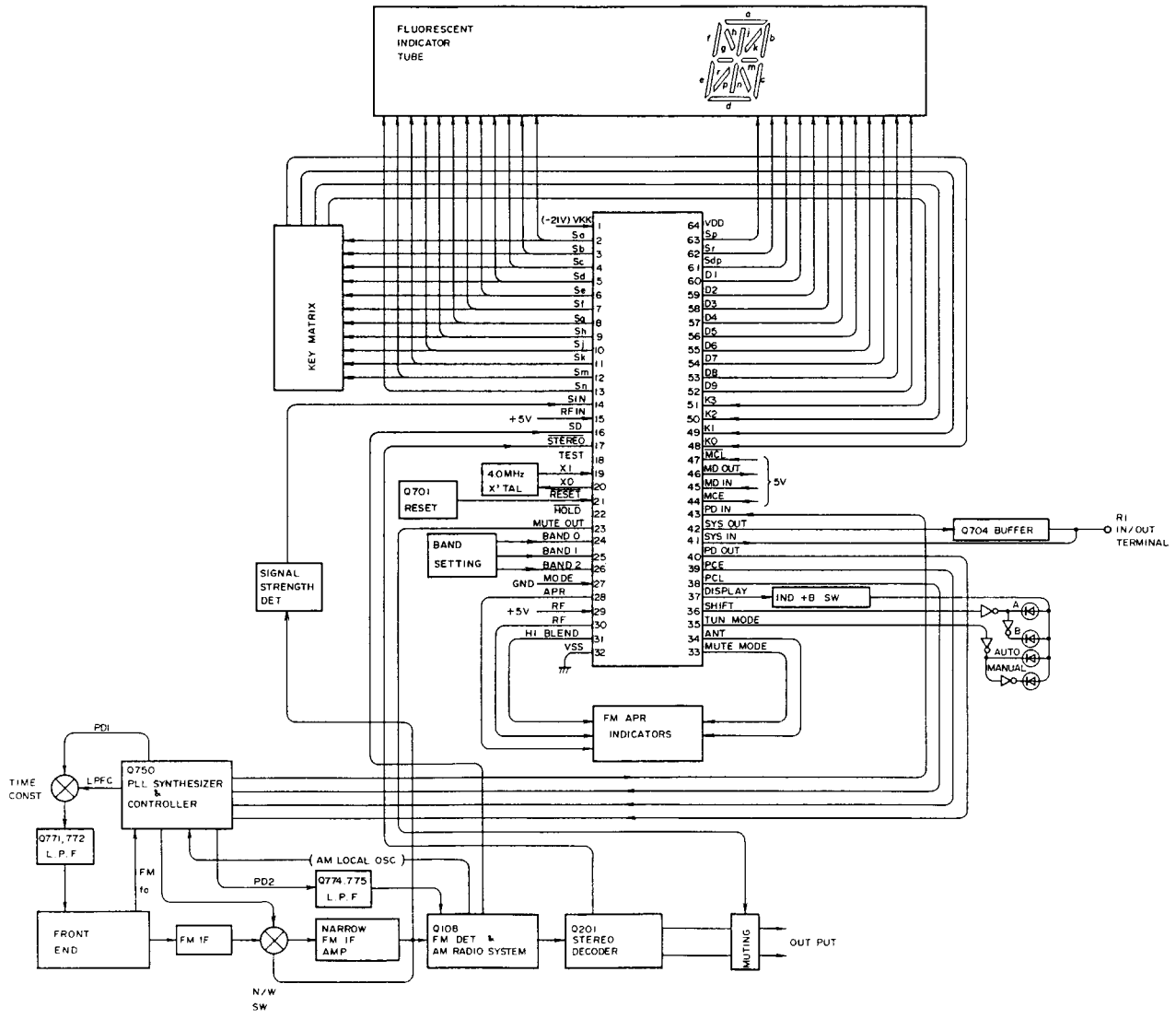
PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	27110495A	Front bracket ass'y
12	27100191	Chassis
13	27121257A	Back panel ⟨D⟩
	27121257-1A	Back panel ⟨G⟩
	27121257-2A	Back panel ⟨W⟩
	27121257-4A	Back panel ⟨Q⟩
14	27141333	Bracket S
17	28133223	Back plate
18	28130257	Dial plate
19	28191510A	Clear plate
21	27300750	⚠ Bushing (Strainrelief)
22	28323175	Knob, power
23	27273069A	Joint
25	838440089	4TTB+8C (BC), Tapping screw
26	834430088	3TTS+8B (BC), Tapping screw
27	831130088	3TTW+8B, Tapping screw
28	833430080	3TTP+8P (BC), Tapping screw
29	834230108	3TTS+10B (Ni), Nickel screw ⟨G/W⟩
30	27190524	KGLS-14R, Holder
51	28184437	Top cover
52	838440089	4TTB+8C (BC), Tapping screw
53	834430068	3TTS+8B (BC), Tapping screw
61	1A163121	Front panel ass'y
71	28140020	Cushion
72	28199164	Film
81	27175219-1	Leg
82	834430088	3TTS+8B (BC), Tapping screw
P903	253142A	⚠ AS-UC-7#18, Power supply cord ⟨D⟩
	253149	⚠ AS-CEE, Power supply cord ⟨G/W⟩
	253104	⚠ Power supply cord ⟨U.K. model⟩
	253118	⚠ AS-SAA, Power supply cord ⟨Australian model⟩
P904	25065123	⚠ NSS-1258P, Voltage selector switch ⟨W⟩
T901	2300437	⚠ NPT-1035D, Power transformer ⟨D⟩
	2300438	⚠ NPT-1035G, Power transformer ⟨G⟩
	2300439	⚠ NPT-1035DG, Power transformer ⟨W⟩
	2300464	⚠ NPT-1035Q, Power transformer ⟨Q⟩
U1	1A163577-1	NARF-3577-1, Main circuit pc board ass'y ⟨D⟩
	1A163577-1A	NARF-3577-1A, Main circuit pc board ass'y ⟨G/Q⟩
	1A163577-1B	NARF-3577-1B, Main circuit pc board ass'y ⟨W⟩
U2	1A163578-1	NADIS-3578-1, Display circuit pc board ass'y ⟨D⟩
	1A163578-1A	NADIS-3578-1A, Display circuit pc board ass'y ⟨G/Q⟩
	1A163578-1B	NADIS-3578-1B, Display circuit pc board ass'y ⟨W⟩
U3	1A163579-1	NASW-3579-1, Switch circuit pc board ass'y
U4	1A163582-1	NAPS-3582-1, Power switch pc board ass'y ⟨D⟩
	1A163582-1A	NAPS-3582-1A, Power switch pc board ass'y ⟨G/Q/W⟩

NOTE: ⟨D⟩ : Only 120V model
⟨G⟩ : Only 220V model
⟨Q⟩ : Only 240V model
⟨W⟩ : Only Worldwide model

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

BLOCK DIAGRAM OF IC



CONNECTION OF MICROPROCESSOR

Key matrix

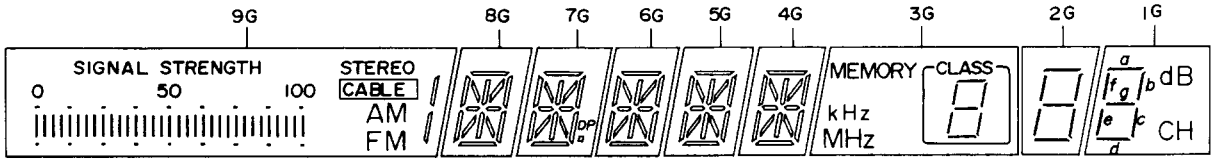
Input / Output	KO (48)	K1 (49)	K2 (50)	K3 (51)
Sa (2)	P1/21	P2/22	P3/23	P4/24
Sb (3)	P5/25	P6/26	P7/27	P8/28
Se (4)	P9/29	P10/30	P11/31	P12/32
Sd (5)	P13/33	P14/34	P15/35	P16/36
Se (6)	P17/37	P18/38	P19/39	P20/40
Sf (7)	TUN.LEVEL	DISPLAY	CHARACTER	CABLE
Sg (8)	DOWN/LAST	UP/NEXT	FM	AM
Sh (9)	APR OPE	RF MDOE	IF BAND	HI BLEND
Sj (10)	MUTE MODE	ANTENNA	TUN.MODE	MEMORY
Sk (11)	C1	C2	C3	C4
Sm (12)	C5	C6	SHIFT	PRESENT SCAN

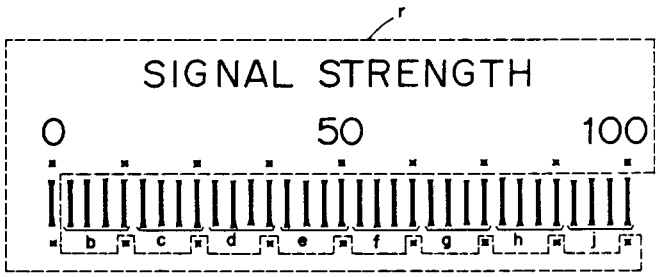
TMP47C870 Terminal Description

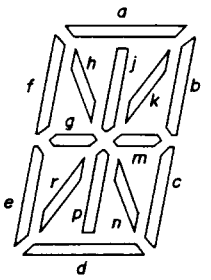
Pin No.	Symbol	Description
1	VKK	This is the power supply terminal for fluorescent indicator tube drive. Connect to −30V.
2 3 4 5 6 7 8 9 10 11 12 13	Sa Sb Sc Sd Se Sf Sg Sh Sj Sk Sm Sn	These are the output terminal for segment and key return signal. "H" when active.
14	S IN	This is the signal strength input terminal. (A/D converter input)
15	RF IN	This is RF input terminal. DX at the high level.
16	SD	This is the auto stop control input terminal. Auto tuning stops when this terminal becomes the high level.
17	$\overline{\text{STEREO}}$	This is the input terminal for detection of stereo broadcast. "L" when stereo broadcast.
18	TEST	This is the test terminal for LSI. Connect to the ground terminal.
19 20	XI XO	Connect to the 4.00MHz ceramic oscillator.
21	$\overline{\text{RESET}}$	This is the reset terminal. Reset at the low level when the power is turned on.
22	$\overline{\text{HOLD}}$	This is the hold input terminal. "L" when active.
23	MUTE OUT	This is the muting output terminal. "H" when active.
24 25 26	BAND 0 BAND 1 BAND 2	These are the band setting connection terminal.
27	MODE	This is the connection terminal for function setting.
28	APR	This is the output terminal for indication APR. ON at the high level. OFF at the low level.
29	RF	This is the output terminal for indication RX. DX at the high level. LOCAL at the low level.
30	IF	This is the output terminal for indication IF BAND. WIDE at the high level. NARROW at the low level.
31	HI BLEND	This is the output terminal for indication HI-BLEND. OFF at the high level. ON at the low level.
32	V_{SS}	Connect to the ground terminal.

Pin No.	Symbol	Description
33	MUTE MODE	This is the output terminal for indication MUTING MODE. AUTO at the high level. MONO at the low level.
34	ANT	This is the output terminal for indication ANT. A at the high level. B at the low level.
35	TUN MODE	This is the output terminal for indication TUNING MODE. AUTO at the high level. MANUAL at the low level.
36	SHIFT	This is the output terminal for indication SHIFT. 1-20 at the high level. 20-40 at the low level.
37	$\overline{\text{DISPLAY}}$	This is the display control output terminal. "L" during FL tube lights on.
38	$\overline{\text{PCL}}$	This is the clock output terminal to PLL IC (LC7218).
39	PCE	This is the chip selector output terminal to PLL IC. "H" when active.
40	PD OUT	This is the data output terminal to PLL IC.
41	SYS IN	This is the system code input terminal. "H" when active.
42	$\overline{\text{SYS OUT}}$	This is the system code output terminal. "L" when active.
43	PDIN	This is the data input terminal from PLL PIC (LC7218).
44	MCE	This is the chip selector output terminal to memory IC. Not used.
45	MD IN	This is the data input terminal from memory IC. Not used.
46	MD OUT	This is the data output terminal to memory IC. Not used.
47	MCL	This is the clock output terminal to memory IC. Not used.
48 49 50 51	K0 K1 K2 K3	These are the key scan input terminals. "H" when active.
52 53 54 55 56 57 58 59 60	D9 D8 D7 D6 D5 D4 D3 D2 D1	These are the digit output terminal for fluorescent indicator tube. "H" when active.
61 62 63	DP Sr Sp	These are the segment output terminal for fluorescent indicator tube. "H" when active.
64	V_{DD}	This is the device power source terminal. At the time of operation, the supply is 5V. The internal data memory is maintained by means of super capacitor.

9-BT-61GK (Fluorescent indicator tube)







PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	-
CONNECTION	F 1	F 1	NP	NP	NP	NP	s	1 G	2 G	3 G	4 G	5 G	6 G	7 G	8 G	9 G	NP	NP	NP	NP	NP	p	r	a	-
PIN NO.	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
CONNECTION	b	c	d	e	f	g	h	j	k	m	n	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	F 2	F 2

ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	/	a	a	a	a	a	a	a	a
b	▮▮▮▮	b	b	b	b	b	b	b	b
c	▮▮▮▮	c	c	c	c	c	c	c	c
d	▮▮▮▮	d	d	d	d	d	d	d	d
e	▮▮▮▮	e	e	e	e	e	e	e	e
f	▮▮▮▮	f	f	f	f	f	f	f	f
g	▮▮▮▮	g	g	g	g	g	g	g	g
h	▮▮▮▮	h	h	h	h	h	-	-	-
j	▮▮▮▮	j	j	j	j	j	-	-	-
k	STEREO	k	k	k	k	k	-	-	-
m	CABLE	m	m	m	m	m	MEMORY	-	-
n	AM	n	n	n	n	n	kHz	-	dB
p	FM	p	p	p	p	p	MHz	-	CH
r	SIGNAL STRENGTH 0 50 100	r	r	r	r	r	CLASS	-	-
s	-	-	DP	-	-	-	-	-	-

Preparation

- Input

FM mono: 1kHz, 75kHz devi., 60dB/μV (65dBf)
FM stereo: 1kHz, L+R 67.5kHz devi., Pilot signal 19kHz 7.5kHz devi.
AM: 400Hz, 300% mod.

Reference specifications

Tuned voltage AM	(10kHz steps)	530kHz	1.3±0.5V
		1710kHz	7.5±0.5V
	(9kHz steps)	522kHz	1.2±0.5V
		1611kHz	7.0±0.5V
FM		87.5MHz	2.8±0.5V
		108MHz	21.0±0.5V
Muting level		16±3dBμ	
Muting width		35±10kHz	
Auto stop level AM		Less than 67dB/m	
FM		Less than 20dBμ	
Stereo indicator level		16±4dBμ	
Hi-Blend off level		30±5dBμ	

FM section

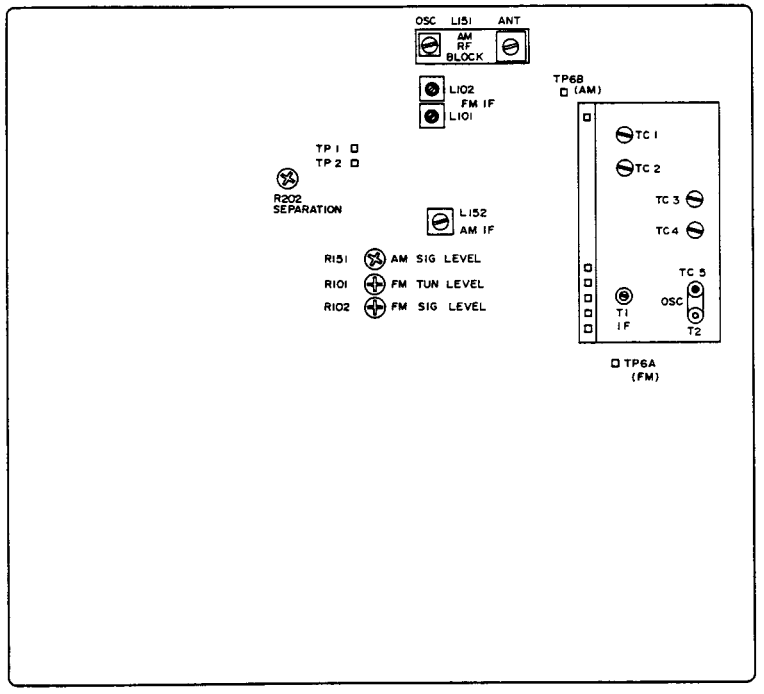
Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuned frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF	1	Fig. 1	98.1MHz, 1kHz 75kHz devi. 60dBμ (65dBf)	——	98.1MHz	DC voltmeter	L101	0±20mV	RF MODE: DX IF BAND: Wide CABLE/MUTE SW: CABLE Repeat the steps 1, 2 and 3 until no further adjustment is necessary.
	2		35dBμ (40dBf)			AC voltmeter	IFT on front end	Maximum	
	3		60dBμ (65dBf)			Distortion Analyzer	L102	Minimum	
STEREO DISTORTION		Fig. 2	98.1MHz Ext. modulation 60dBμ (65dBf)	L+R 1kHz 67.5kHz devi. Pilot signal 7.5kHz devi.	98.1MHz	Distortion Analyzer	IFT (T1) on front end	Minimum	Don't turn more than 180°.
STEREO SEPARATION		Fig. 2	98.1MHz Ext. modulation 60dBμ (65dBf)	L channel	98.1MHz	AC voltmeter (R channel)	R202	Minimum	Maximum and same separation
				R channel		AC voltmeter (L channel)		Minimum	
MUTING LEVEL		Fig. 2	16dBμ (21.2dBf)	——	98.1MHz	Oscilloscope	R101	Output: ON	CABLE/MUTE SW: OFF CABLE indicator is turns off.
			15dBμ (20.2dBf)					Output: OFF	
SIGNAL INDICATOR		Fig. 2	98.1MHz, 1kHz 75kHz devi. 60dBμ (65dBf)		98.1MHz	8th. signal indicator	R102	Light on	

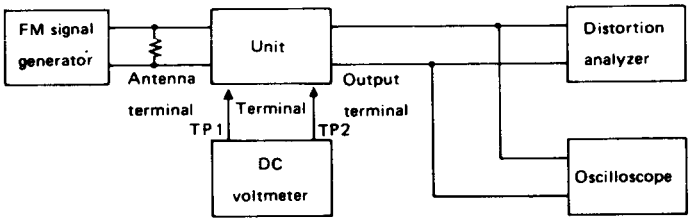
AM section

Step	AM SG output	Tuned frequency	Output indicator	Adjustment point	Adjust for
1		530kHz (522kHz)	Digital DC voltmeter	OSC coil on L151	1.3±0.1V
2	600kHz (603kHz) 400Hz 30% mod. 60dB/m	600kHz (603kHz)	AC coltmeter	ANT coil on L151	Maximum
3	990kHz 400Hz 30% mode. 60dB/m	990kHz	AC voltmeter	L152	Maximum
4	990kHz 400Hz 30% mod. 55dB/m	990kHz	4th. signal indicator	R151	Light on

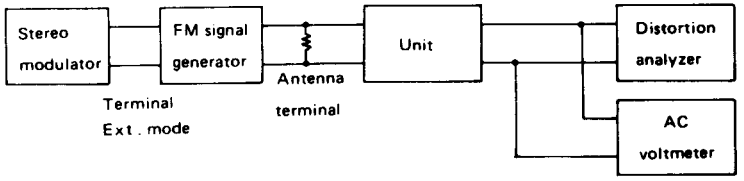
( ) 9kHz step model

Adjustment point

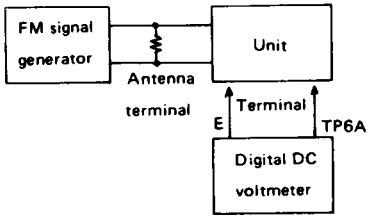




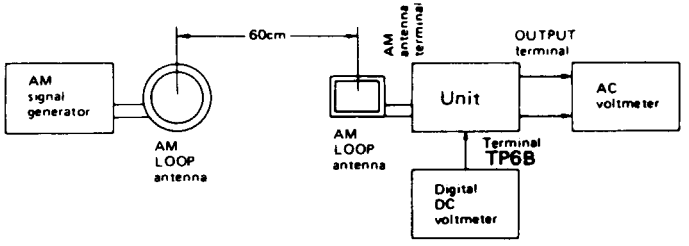
〈Fig.1〉



〈Fig.2〉



〈Fig.3〉 Tuned Voltage

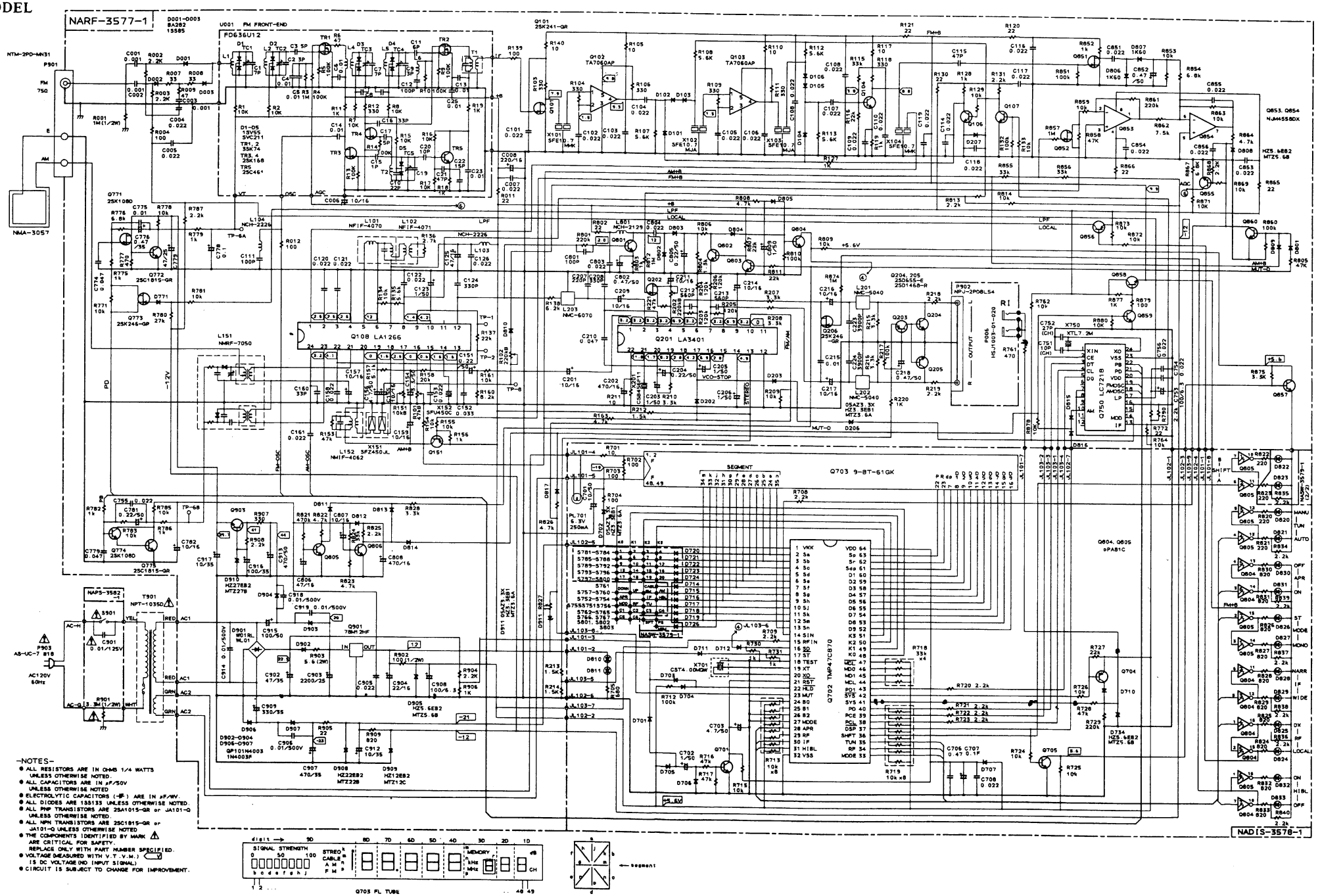


〈Fig.4〉 〈AM〉

A | B | C | D | E | F | G

HEMATIC DIAGRAM

/ MODEL


NARF-3577-1
FD636U12
NARF-3577-1
NADIS-3578-1
NAPS-3582
NMA-3057
NTM-2PD-MN31
Q703 9-BT-61GK
Q703 TMP47C870
Q703 FL TUBE
SIGNAL STRENGTH
STEREO CABLE
MEMORY
-NOTES-
ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
ALL CAPACITORS ARE IN μF/50V UNLESS OTHERWISE NOTED
ELECTROLYTIC CAPACITORS (-MF-) ARE IN μF/WV.
ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
ALL PNP TRANSISTORS ARE 2SA1015-GR or JA101-Q UNLESS OTHERWISE NOTED.
ALL NPN TRANSISTORS ARE 2SC1815-GR or JA101-Q UNLESS OTHERWISE NOTED
THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
VOLTAGE (MEASURED WITH V.T.V.M.) IS DC VOLTAGE (NO INPUT SIGNAL)
CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

PRINTED CIRCUIT BOARD-PARTS

MAIN CIRCUIT PC BOARD (NARF-3577-1/1A/1B)

CIRCUIT NO.	PART NO.	DSCRIPTION
	Front end	
U001	240062	BFD636U12
	ICs	
Q102, Q103	222407	TA7060AP
Q108	22240214	LA1266A
Q201	22240252	LA3401
Q750	22240253	LC7218
Q853, Q854	222502	NJM4558D-X
Q901	222780125NEC	78M12HF
	Transistors	
Q101	2212194	2SK241-Y
Q104	2210746	2SC945A-P
Q106, Q107	2211255 or	2SC1815-GR or
	2210746	2SC945A-P
Q151, Q203	2211455 or	2SA1015-GR or
	2212495	JA101-Q
Q202, Q206	2211945	2SK246-GR
Q204, Q205	2211705 or	2SD655-E or
	2212794	2SD1468-R
Q771	2212294	2SK108-D
Q772, Q775	2211255 or	2SC1815-GR or
	2210746	2SC945A-P
Q773	2211945	2SK246-GR
Q774	2211255	2SC1815-GR
Q801-Q806	2211255 or	2SC1815-GR or
	2210746	2SC945A-P
Q851	2212274	2SK192-Y
Q852	2211945	2SK246-GR
Q855, Q903	2211255 or	2SC1815-GR or
Q857-Q860	2210746	2SC945A-P
Q856	2211455 or	2SA1015-GR or
	2212495	JA101-Q
	Diodes	
D001-D003	223165 or	BA282 or
	223149	1SS85

CIRCUIT NO.	PART NO.	DSCRIPTION
D101-D106	223163	1SS133
D202, D203	223163	1SS133
D206	224450361	MTZ3.6A
D207, D771	223163	1SS133
D801-D805	223163	1SS133
D806, D807	223132	1K60
D808	224450562	MTZ5.6B
D809-D817	223163	1SS133
D901	223862 or	WL01 or
	223890	W01RL
D902-D904	223880 or	GP101N4003 or
D906, D907	223896	1N4003F
D905	224450562	MTZ5.6B
D908	224652202 or	HZ22EB2 or
	224452202	MTZ22B
D909	224451203	MTZ12C
D910	224652702 or	HZ27EB2 or
	224452702	MTZ27B
D911	224450361	MTZ3.6A
	Transformers	
L101	233396	NFIF-4070
L102	233397	NFIF-4071
L152	232139	NMIF-4062
	Coils	
L001	233312	NFA-3051 ⟨G/W⟩
L103, L104	233400M022	NCH-2226
L201, L202	233294	NMC-5040
L203	233383	NMC-6070
L801	231081	NCH-2129
	Ceramic filters	
X101, X104	3010137	SFE10.7MMK
X102, X103	3010087	SFE10.7MJA
X151	3010123	SFZ450JL
X152	3010076	SFU450C

CIRCUIT NO.	PART NO.	DSCRIPTION
	RF block	
L151	232148	NMRF-7050
	Osc elements	
X201	3010152	CSB456F11, Ceramic
X750	3010151	XTL-7.2M, X'tal
	Capacitors	
C006	354741009	10μF, 16V, Elect.
C008	354742219	220 μF, 16V, Elect.
C123	354780109	1 μF, 50V, Elect.
C125	354744709	47μF, 16V, Elect.
C151	354782299	0.22μF, 50V, Elect.
C152	371123334	0.033 μF ±5%, 50V, Mylar
C154	354780339	3.3 μF, 50V, Elect.
C155, C157	354741009	10μF, 16V, Elect.
C156	354780479	4.7 μF, 50V, Elect.
C159, C201	354741009	10μF, 16V, Elect.
C202	354744719	470 μF, 16V, Elect.
C203	354780109	1 μF, 50V, Elect.
C204	354782299	0.22μF, 50V, Elect.
C205, C206	354780109	1 μF, 50V, Elect.
C209, C211	354741009	10μF, 16V, Elect.
C210	371124734	0.047 μF ±5%, 50V, Mylar
C212, C213	370135614	560pF ±5%, 100V, APS ⟨D⟩
	370132714	270pF ±5%, 100V, APS ⟨G/W⟩
C214, C216	354741009	10μF, 16V, Elect.
C215	371121034	0.01μF ±5%, 50V, Mylar
C217	354741009	10μF, 16V, Elect.
C218	354784799	0.47μF, 50V, Elect.
C223, C224	371123924	3900pF±5%, 50V, Mylar
C221, C222	370131514	150pF ±5%, 100V, APS ⟨W⟩
C753	354721019	100 μF, 6.3V, Elect.
C774	371124734	0.047 μF ±5%, 50V, Mylar
C775	371121034	0.01μF ±5%, 50V, Mylar
C776	395164797	0.47μF, 35V, Tantal
C777	354754709	47μF, 25V, Elect.

CIRCUIT NO.	PART NO.	DSCRIPTION
C778	371121044	0.1 μF ±5%, 50V, Mylar
C779	371124734	0.047 μF ±5%, 50V, Mylar
C781	354782299	0.22μF, 50V, Elect.
C782	354741009	10μF, 16V, Elect.
C802	354784799	0.47μF, 50V, Elect.
C805	354782299	0.22μF, 50V, Elect.
C806	354744709	47μF, 16V, Elect.
C807	354741009	10μF, 16V, Elect.
C808	354744719	470 μF, 16V, Elect.
C809	354780109	1 μF, 50V, Elect.
C852	354784799	0.47μF, 50V, Elect.
C902	354764709	47μF, 35V, Elect.
C903	354752229	2200μF, 25V, Elect.
C904	354742209	22μF, 16V, Elect.
C907	354764719	470 μF, 35V, Elect.
C908	354721019	100 μF, 6.3V, Elect.
C909	354763319	330 μF, 35V, Elect.
C912	354761009	10μF, 35V, Elect.
C913	354784719	470 μF, 50V, Elect.
C915	354781019	100 μF, 50V, Elect.
C916	354761019	100 μF, 35V, Elect.
C917	354761009	10μF, 35V, Elect.
	Resistors	
R001	431521055	1Mohm, 1/2W, Solid ⟨D⟩
R101	5210068	N06HR 47KBD, Semi-fixed
R102	5210072	N06HR 220KBD, Semi-fixed
R151	5210064	N06HR 10KBD, Semi-fixed
R202	5210072	N06HR 220KBD, Semi-fixed
R902	442521014	100ohm, 1/2W, Metal oxide film
R903	441720564	5.6ohm, 2W, Metal oxide film
	Terminals	
P901	25060087	NTM-2PDMN31, Antenna
P902	25045141	NPJ-2PDBL54, Output
P006	25045172	HSJ1003-01-020, RI
	Radiator	
P903	27160179	RAD-57
	Sockets	
	25050272	NSCT-8P-100
	25050273	NSCT-9P-101
	Switch	
S201	25065286	NSS-22112, Band ⟨W⟩

DISPLAY CIRCUIT PC BOARD (NADIS-3578-1/1A/1B)

CIRCUIT NO.	PART NO.	DSCRIPTION
	Lamp	
PL701	210064B	PL6.3V 250mA
	ICs	
Q702	22240251	TMP47C870
Q804,Q805	222807	μPA81C
	FL tube	
Q703	212077	9-BT-61GK
	Transistors	
Q701, Q705	2211255 or	2SC1815-GR or
	2210746	2SC945A-P
Q704	2211455 or	2SA1015-GR or
	2212495	JA101-Q
	Diodes	
D701	223163	1SS133
D703-D707	223163	1SS133
D708	224450361	MTZ3.6A
D710-D712	223163	1SS133
D714-D719	223163	1SS133
D725	223163	1SS133
D734	224450562	MTZ5.6B
	L.E.Ds	
D810, D811	225142	SEL2913K
D820, D825	225142	SEL2913K
D821, D824	225137CG,	SEL2413ECG,
D826, D829	225137DG or	SEL2413EDG or
D830, D833	225137DY	SEL2413EDY
D827, D828	225142	SEL2913K
D831, D832	225142	SEL2913K
	Capacitors	
C701	354781009	10μF, 50V, Elect.
C702	354780109	1 μF, 50V, Elect.
C703	354780479	4.7 μF, 50V, Elect.
C706	375524744	0.47μF ±5%, 50V, Plastic (MMT)
C707	3000057	0.1F, 5.5V, Super
	Osc element	
X701	3010150	CST4.00MGW
	Resistor	
R713	49163103408	10kohm×8, 1/10W, Network
R718	49121333403	33kohm×3, 1/8W, Network
R719	49163103408	10kohm×8, 1/10W, Network
	Switches	
S751-S767	25035548	NPS-122-L510
S791	25065286	NSS-22112 ⟨W⟩
	Holders	
	27190710	L.E.D/POWER
	27190712	L.E.D

SWITCH CIRCUIT PC BOARD (NASW-3579-1)

CIRCUIT NO.	PART NO.	DSCRIPTION
D720-D724	223163	1SS133, Diode
D726	223163	1SS133, Diode
D822, D823	225137CG,	SEL2413ECG,
	225137DG or	SEL2413EDG or
	225137DY	SEL2413EDY, LED
S781-S803	25035548	NPS-122-L510, Switches
	27190711	Holder

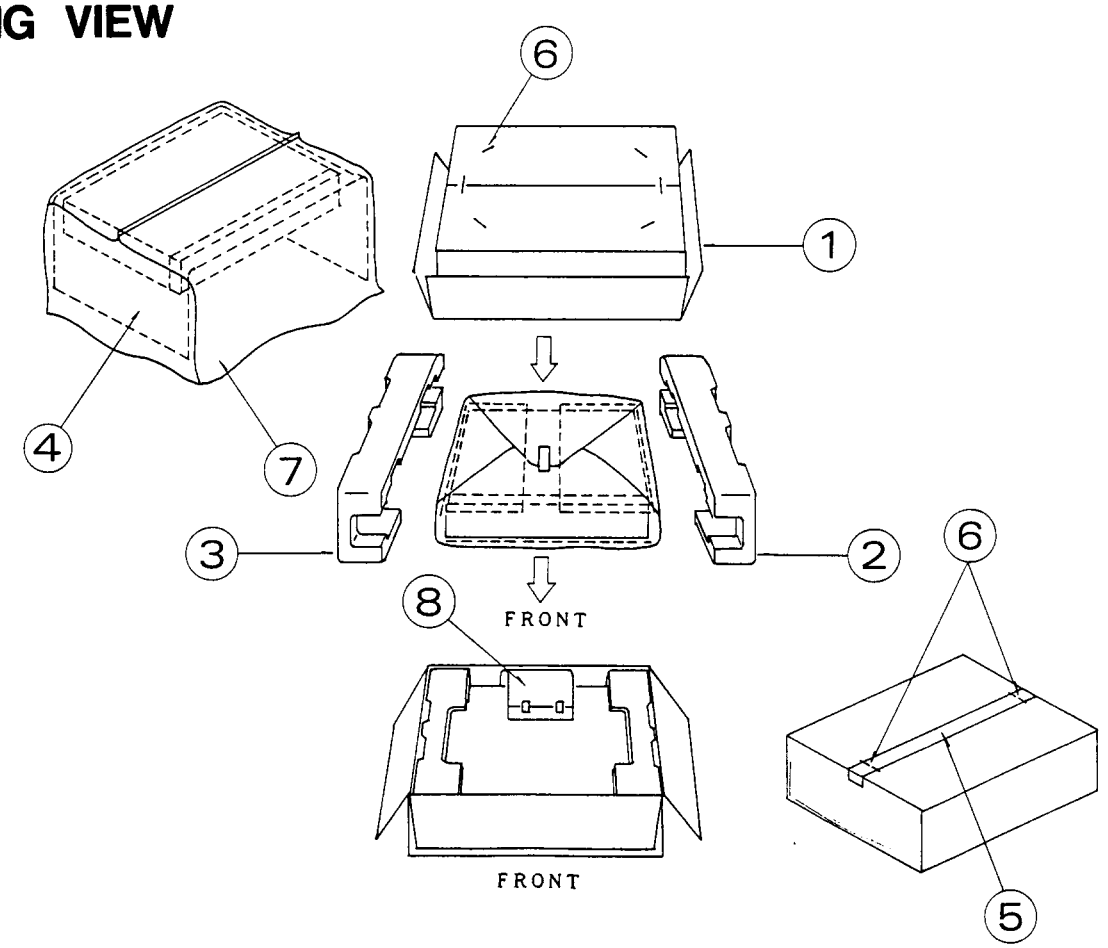
POWER SUPPLY CIRCUIT PC BOARD (NAPS-3582-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
C901	3500065A	⚠ 0.01μF, AC400V/125V, Capacitor IS
R901	431523355	⚠ 3.3Mohm, 1/2W, Solid resistor ⟨D⟩
S901	25035558	⚠ NPS-111-L520P, Power switch

NOTE: ⟨D⟩ : Only 120V model
⟨G⟩ : Only 220V/240V models
⟨W⟩ : Only Worldwide model

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTIC SHOCK. REPLACE ONLY WITH PART NUMBERS SPECIFIED.

PACKING VIEW



REF. NO.	PART NO.	DESCRIPTION
1	29051918	Master carton box
2	29091329A	Pad L
3	29091330A	Pad R
4	29095012-1	Protection sheet
5	260012	Damplon tape
6	282301	Sealing hook
7	29100036A	Poly-vinyl bag
8	Accessary bag ass'y	
	120V model	
	292064B	FM antenna
	29341413	Instruction manual
	2010098A	Connection cord
	2010169	Connection cord for RI
	232140	NMA-3057, AM loop antenna
	25060123	FM adaptor
	29100006A	Poly-vinyl bag
	29365019	Warranty card (Only U.S.A. model)
	29358002G	Service station list (Only U.S.A. model)
	220V/240V/Worldwide models	
	292092	FM antenna
	29341415	Instruction manual
	2010098A	Connection cord
	2010169	Connection cord for RI
	232140	NMA-3057, AM loop antenna
	29341173	Instruction manual, Italian
	29100006A	Poly-vinyl bag
	25055040	CV-K-2, Conversion plug (Only worldwide model)
	25060123	FM adaptor (Only 240V and world models)

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